math

science

# How Much Lunch Is Left Over?

## Objective

To teach students that reducing product packaging can often reduce waste.

## Activity Description

Students will weigh their lunches before and after eating to determine how much of their lunch is packaging.

## Materials Needed

- Copies of *Packaging Worksheet* for each member of the class
- Resealable plastic bags (approximately 1 quart capacity) for each member of the class
- Small scales capable of weighing items under a pound

## Key Vocabulary Words

Source reduction
Recycling
Organics
Composting
Landfills
Disposable

## Duration

2 hours

## Skills Used

Computation
Problem solving

## Activity

Before conducting this activity, ask all students in the class to bring their lunch from home on a selected day. If some students are on a cafeteria lunch program, consult with cafeteria staff to see if they can provide box lunches on a certain day. If box lunches aren't feasible, have the students use the waste from their regular school lunches (e.g., milk containers, plastic packages, paper napkins, cups, etc.).

**Step 1:** Explain source reduction to the class. Discuss how it is one of the most important activities we can engage in to help the environment. In addition, discuss how packaging is frequently necessary, but can also create a lot of waste. (Refer to the Teacher Fact Sheets titled *Products* on page 25 and *Source Reduction* on page 133.) Distribute a copy of the *Packaging Worksheet* to each student.

**Step 2:** Before lunch, ask students to list each piece of their lunch (including the lunch bag or container) in Column A, then weigh each item on a scale and record the weights in Column B on their *Packaging Worksheet*. Send them to lunch with their own resealable bag and instruct them to put all packaging from their lunches in the bag instead of the garbage can. Explain that they should save nature's packaging also (e.g., banana peels, orange rinds, peanut shells).

## Journal Activity

Ask students to write a story about what their lives and the environment would be like if everything was disposable and they could not reuse or recycle anything.

**Step 3:** After lunch, have the students weigh each piece of packaging from their resealable bags and record these numbers in Column C.

**Step 4:** Have the students compare the weight of each piece of their lunches before eating and after. Based on these numbers, calculate the percentage of the total weight that is the packaging for each lunch item.

**Step 5:** Instruct students to total Columns B and C and put these figures in the "Total" row of those columns.

**Step 6:** Discuss recycling, composting, and reuse. Have students put a check in the appropriate box for those packaging items that are reusable, compostable, or recyclable. These checks are for information only, showing students what methods could be used as alternatives to throwing out these items. If students couldn't check any of these alternatives, then the total in their final column (H) would be zero. If, however, they can check off any of these (reusable, compostable, recyclable) columns, then that item's remaining packaging weight gets added to column H.

**Step 7:** Ask students to compare their totals from Columns B, C, and H and share them with the class. Discuss the types of packaging waste they could not reuse, compost, or recycle. Discuss how this waste could be reduced through other actions, such as their purchasing behavior or the design of the packaging.

**Step 8:** Start a list on the chalkboard of ways students can create less waste in their lunches (e.g., buying in bulk, reusable lunch bags, reusable utensils).

## Assessment

Ask students the following questions:

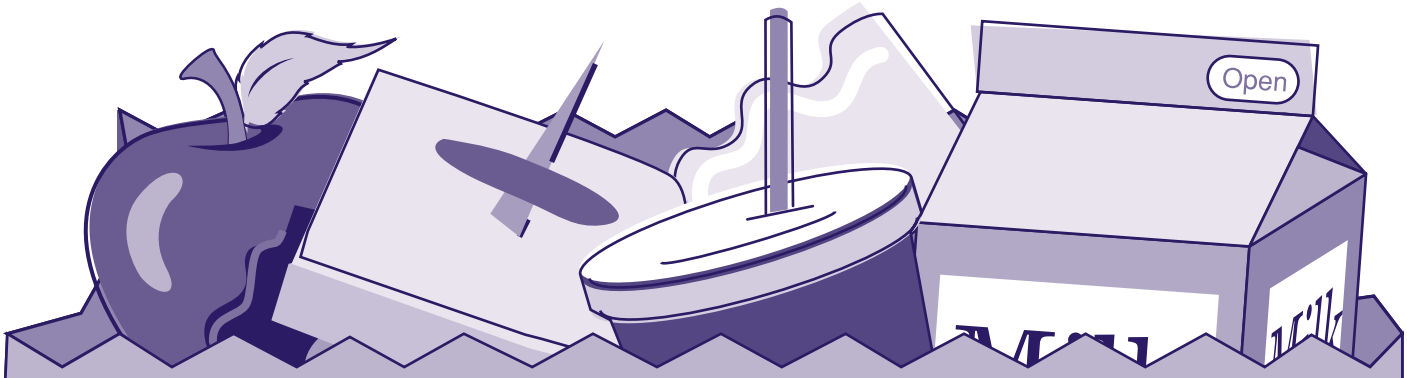
1. Why do manufacturers use packaging?
2. Why did some students have more packaging waste than others?
3. Why do some products have so much packaging?
4. Are there ways to avoid purchasing so much packaging? What are they?
5. Can some packaging be reused or recycled? Which?
6. What is the difference between a disposable and reusable product? What are some examples?

## Enrichment

1. Bring in a bulk item and the same amount in individually wrapped single serving containers. Empty the contents of the containers and weigh them. Compare the weights of the one big container to the total weight of the multiple single-serving containers. Discuss what effect the different kinds of packaging have on the environment.
2. Ask students to go to the store and compare the per unit prices of similar items that are packaged differently (e.g., bulk versus individual packages). Instruct them to write down their findings and draw conclusions from them.
3. Have students find a product they believe to be packaged in excess. Ask them to explain why they think the packaging is wasteful. Instruct the students to write a letter or send an e-mail to the manufacturer that sells the overpackaged product asking the company to consider reducing the amount of packaging. Request a response.
4. Instruct students to select a package of their choice and think of ways they could reduce the volume and/or weight of the package without changing its function. Ask students to sketch a rough drawing or write a description of their proposed package and list the reasons why they think the new package would be better.

# Packaging Worksheet

**Name:** _____




| A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|
| Item From Lunch | Weight Before Eating (Product and Packaging) | Weight After Eating (Packaging) | Packaging % | Packaging Reusable? | Packaging Compostable? | Packaging Recyclable? | Total Amount of Trash That COULD Have Been Avoided. |
| 1. Example: Banana | 170 g | 28 g | 16% | | ✔ | | 28 g |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6 | | | | | | | |
| 7. | | | | | | | |
| 8. | | | | | | | |
| 9. | | | | | | | |
| 10. | | | | | | | |
| Totals | | | | | | | |